

FIG. 1

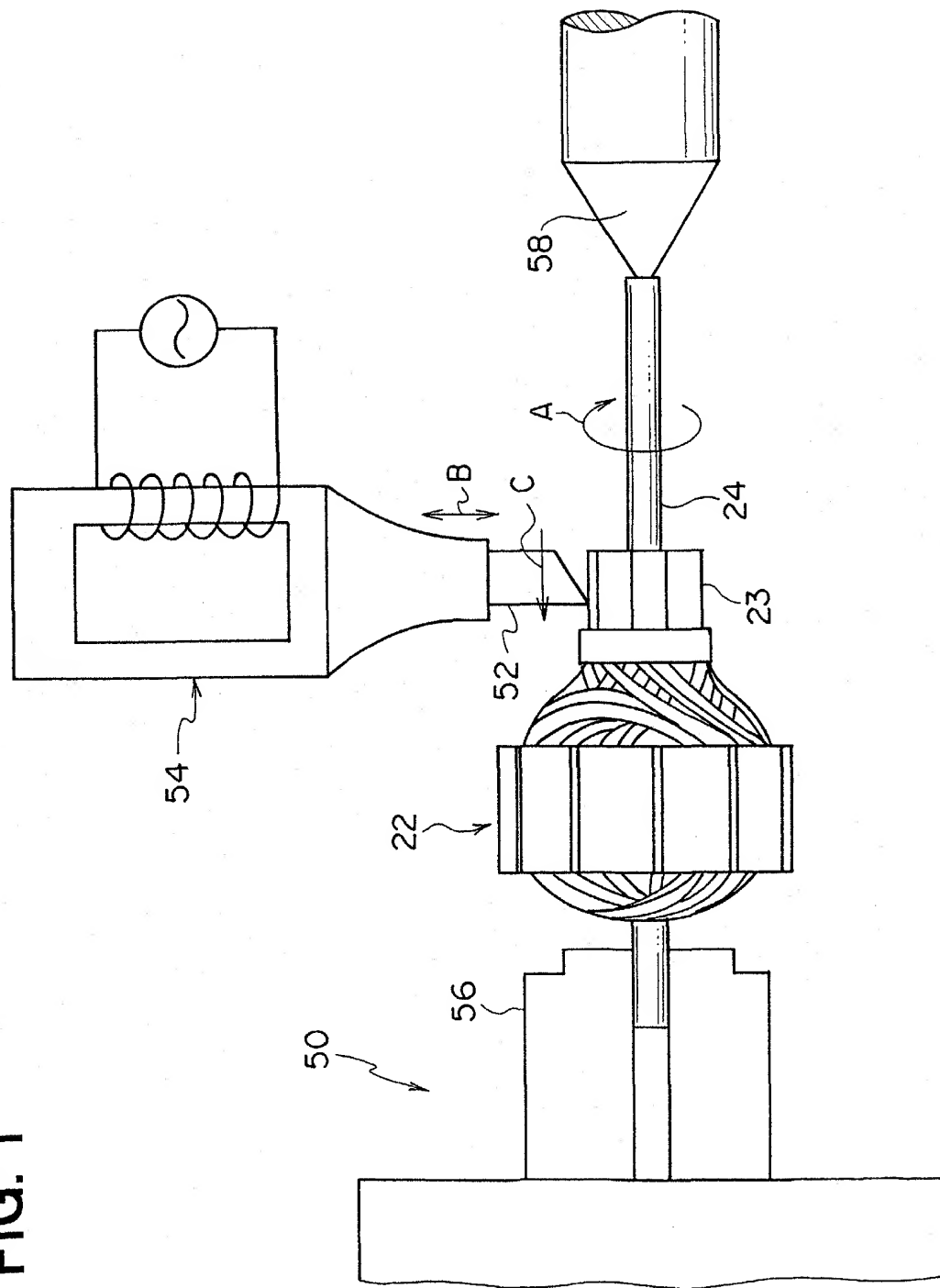


FIG. 2

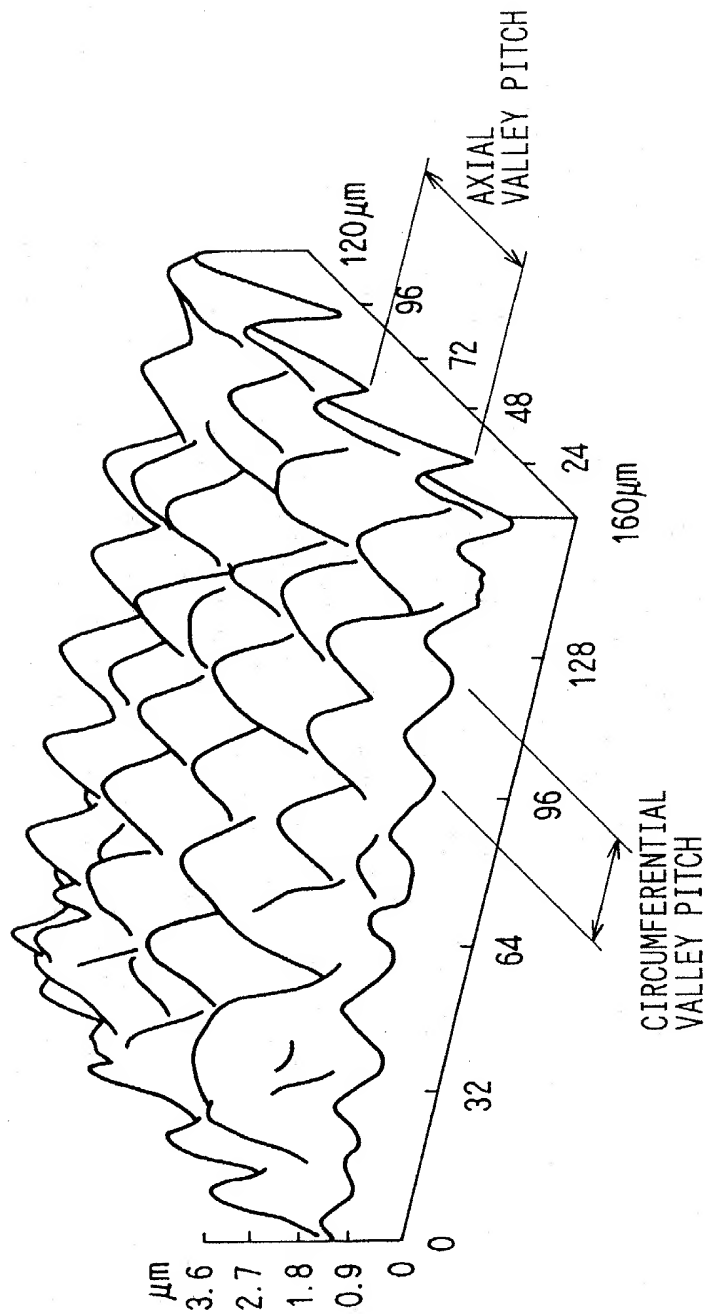


FIG. 3

EFFECTS OF SURFACE ROUGHNESS OF COMMUTATOR

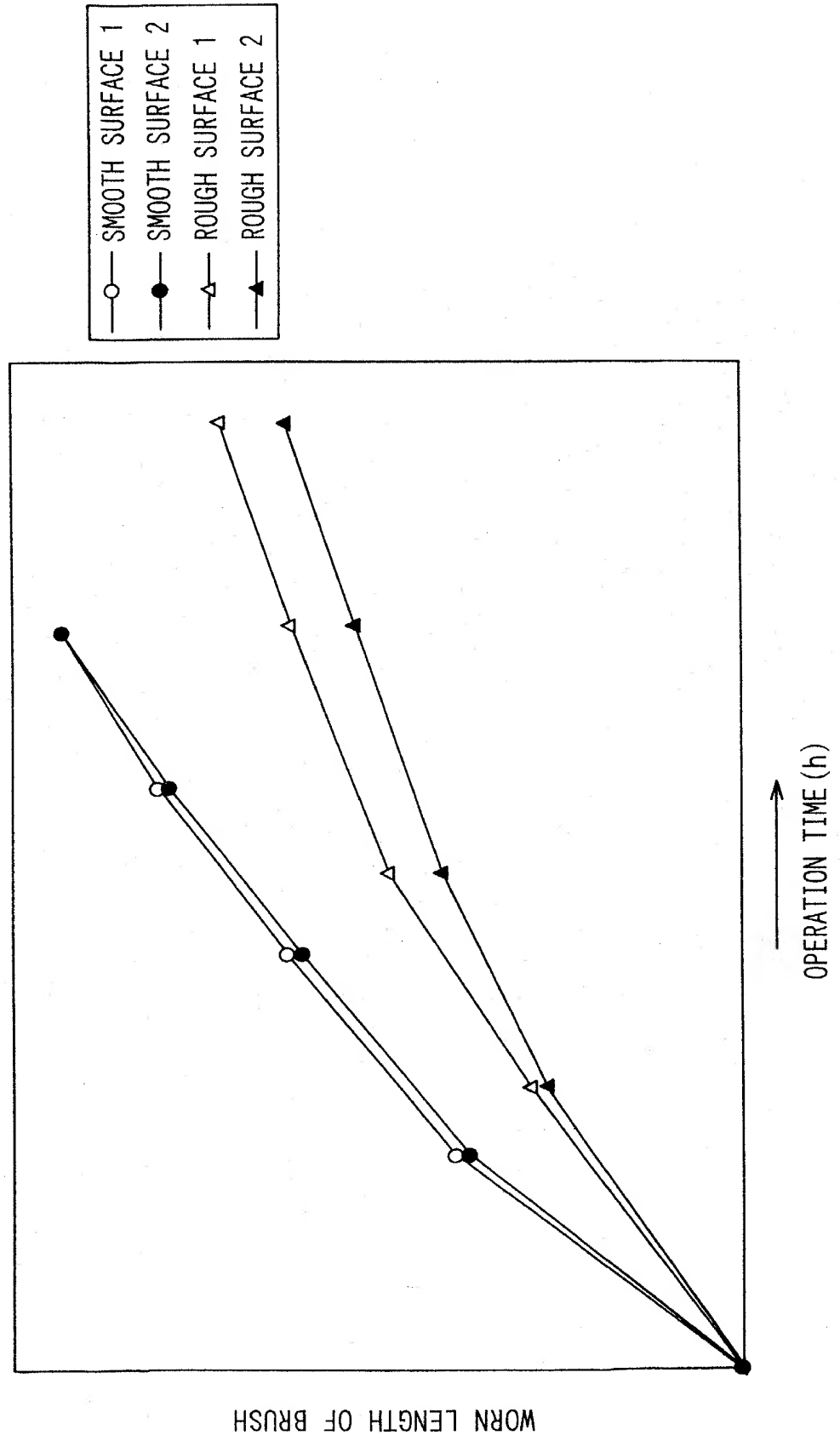


FIG. 4A

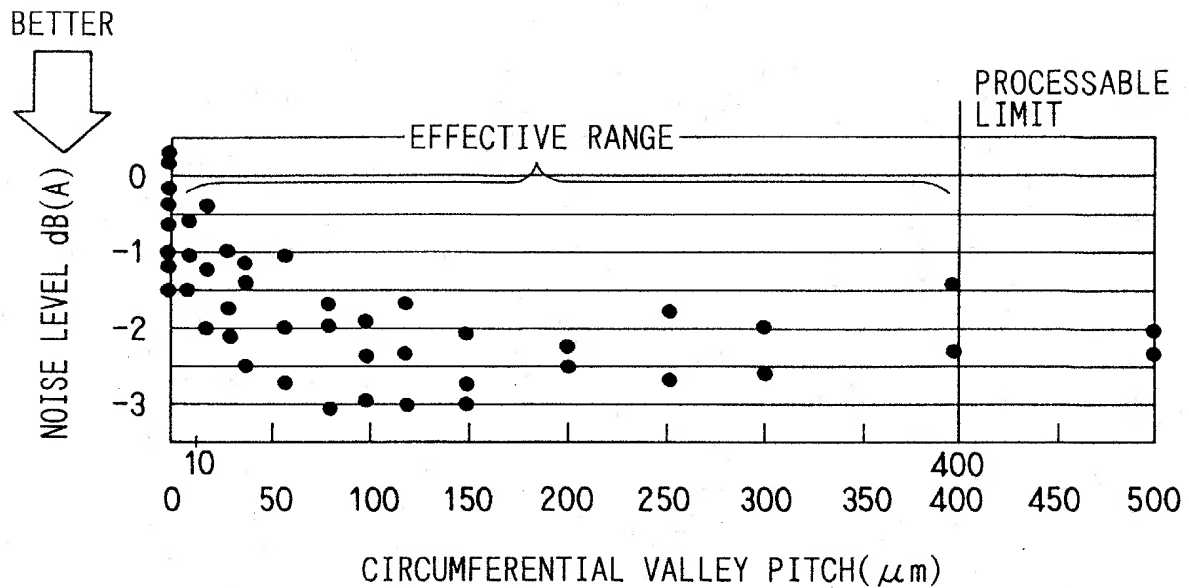


FIG. 4B

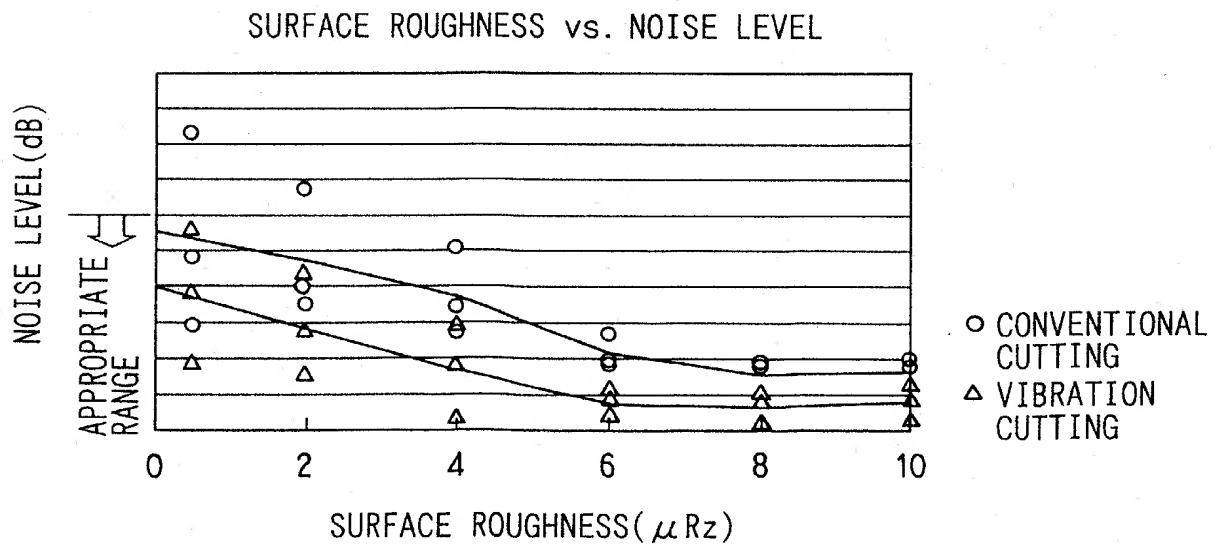


FIG. 5

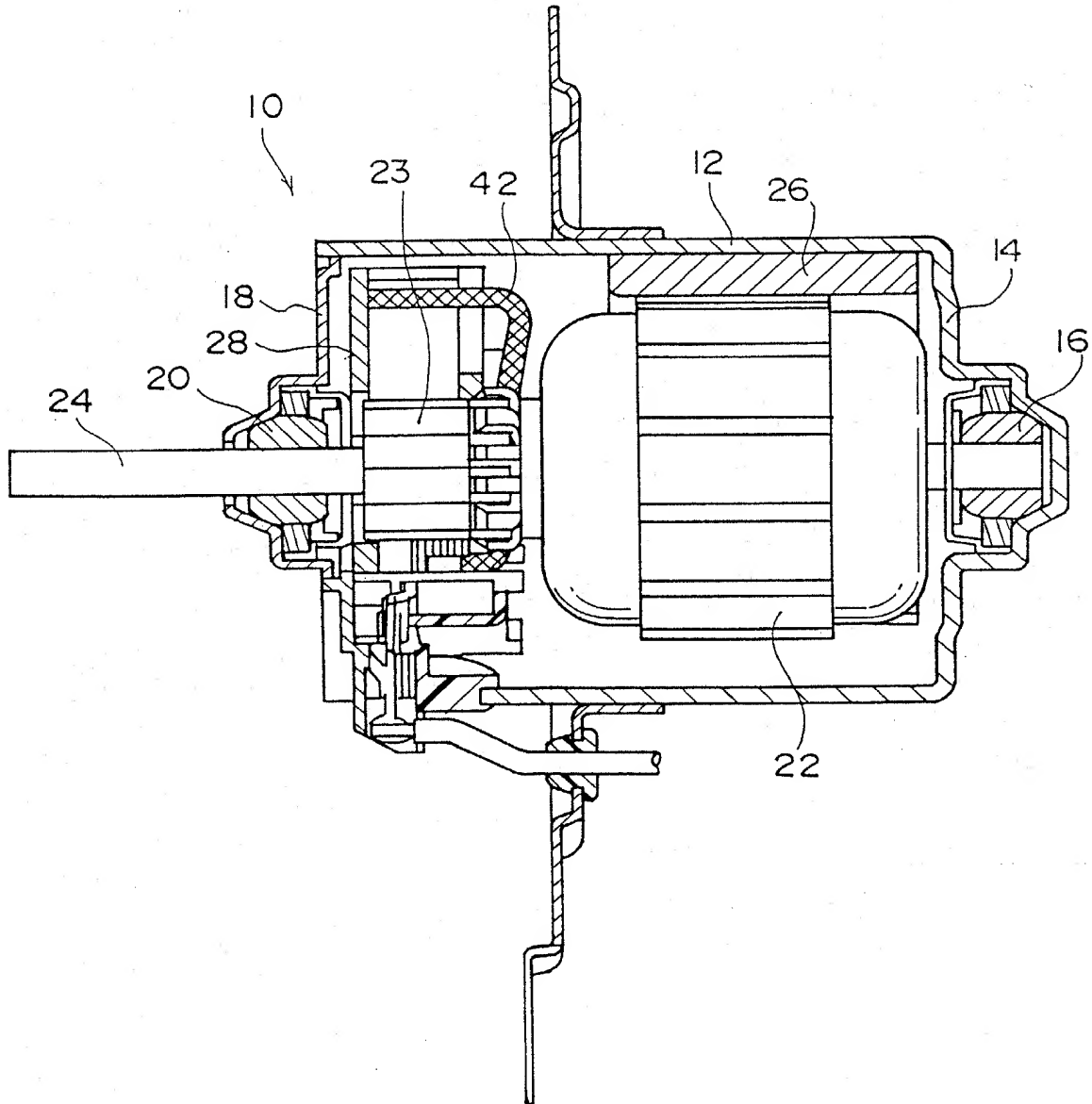


FIG. 5

FIG. 6

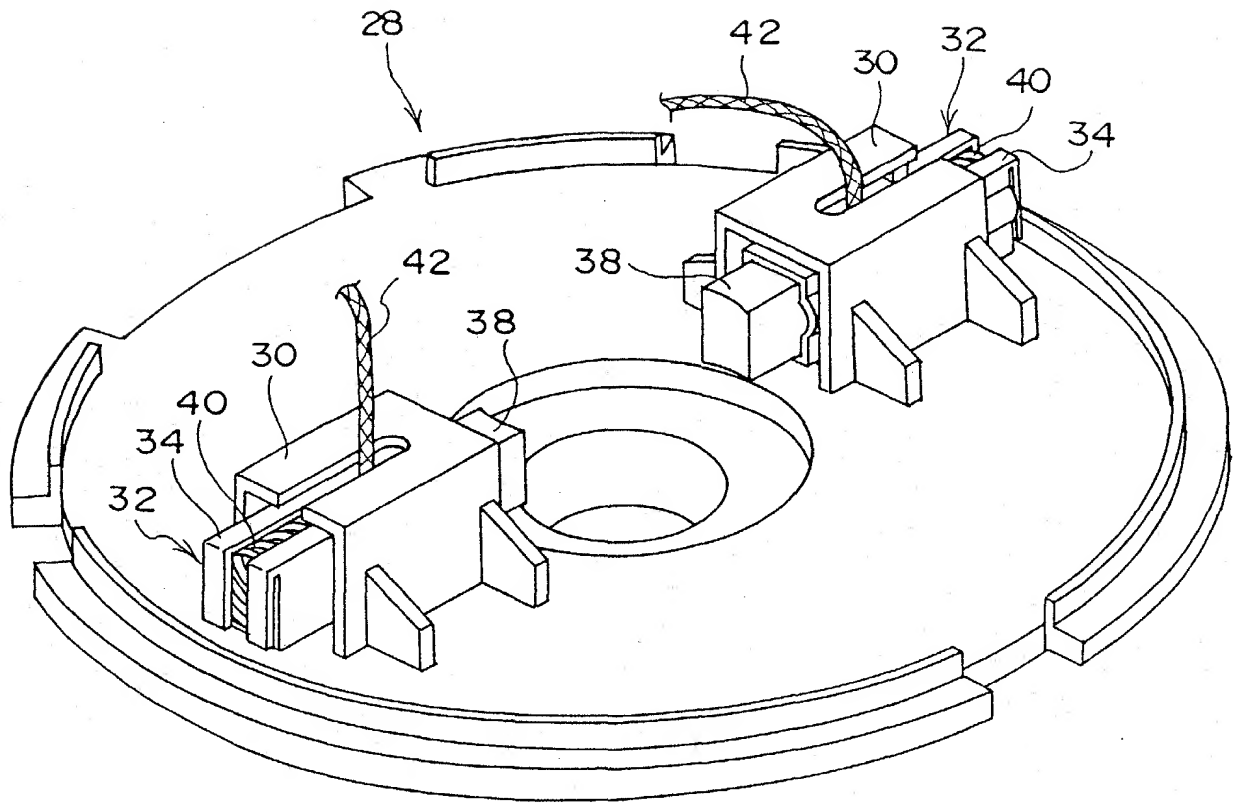


FIG. 7

